This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (previously presented) Method for determining preferred input operating points for a vehicle powertrain system including an engine and a transmission comprising:

defining an output operating region of interest for the transmission;

defining an input operating region of interest for the transmission;

for points of operation within said output operating region of interest, determining preferred operating points within the input operating region to minimize an aggregate system loss within the powertrain.

2. (previously presented) The method as claimed in claim 1, wherein said aggregate system loss comprises engine losses and transmission losses.

3. (previously presented) The method as claimed in claim 1, wherein said transmission is an electrically variable transmission including an electric motor and battery, wherein said aggregate system loss comprises engine losses, transmission losses, motor losses and battery losses.

4. (previously presented) The method as claimed in claim 1, wherein said transmission is an electrically variable transmission including an electric motor and battery, further comprising determining preferred operating points within the input operating region as a function of battery constraints.

5. (Currently Amended) ~~The method as claimed in claim 4~~ Method for determining preferred input operating points for a vehicle powertrain system including an engine and a transmission comprising:

defining an output operating region of interest for the transmission;

defining an input operating region of interest for the transmission;

for points of operation within said output operating region of interest, determining preferred operating points within the input operating region to minimize an aggregate system loss within the powertrain;

wherein said transmission is an electrically variable transmission including an electric motor and battery, further comprising determining preferred operating points within the input operating region as a function of battery constraints;

wherein a first set of preferred operating points corresponding to unconstrained battery usage is determined and second set of preferred operating points corresponding to fully constrained battery usage is determined.

6. (original) Method for determining preferred input operating points for a vehicle powertrain system including an engine and a transmission comprising:

defining an output operating region of interest for the transmission;

defining an input operating region of interest for the transmission;

mapping valid combinations of input operating points within said input operating region and output operating points within said output operating region to a measure of powertrain system losses at said valid combinations; and,

for output operating points within said output operating region, selecting input operating points within said input operating region from mapped valid combinations corresponding to predetermined criteria.

7. (original) The method as claimed in claim 6 wherein said vehicle powertrain is a hybrid powertrain including an electric motor and battery, wherein predetermined criteria are selected from the group consisting of powertrain losses and battery constraints and combinations thereof.

8. (original) The method as claimed in claim 7 wherein said powertrain losses are selected from the group consisting of engine losses, transmission losses, motor losses and battery losses and combinations thereof.

9. (original) The method as claimed in claim 7 wherein said battery constraints comprise no battery usage.

10. (previously presented) Method for determining preferred input operating points for a hybrid powertrain system including an electrically variable transmission having an input coupled to an engine, an output, an electric motor and an electric battery comprising;

defining an operating space for the powertrain in transmission input speed (Ni), transmission input torque (Ti), transmission output speed (No), and transmission output torque (To);

determining aggregate powertrain system power losses throughout said operating space; and,

determining at least one operating region in Ni, No, To corresponding to minimum aggregate system power losses wherein Ni within said determined operating region represents preferred input operating points.

11. (previously presented) The method as claimed in claim 10 wherein said electrically variable transmission is a multi-mode transmission and said operating space is further defined in transmission modes.

12. (original) The method as claimed in claim 10 wherein determining at least one operating region in Ni, No, To is performed for the entire operating space.

13. (original) The method as claimed in claim 10 wherein determining at least one operating region in Ni, No, To is performed for a region within the operating space corresponding to system operation at zero battery power.

14. (Currently Amended) ~~The method as claimed in claim 10~~
Method for determining preferred input operating points for a hybrid powertrain system including an electrically variable transmission having an input coupled to an engine, an output, an electric motor and an electric battery comprising;

defining an operating space for the powertrain in transmission input speed (Ni), transmission input torque (Ti), transmission output speed (No), and transmission output torque (To);

determining aggregate powertrain system power losses throughout said operating space; and,

determining at least one operating region in Ni, No, To corresponding to minimum aggregate system power losses wherein Ni within said determined operating region represents preferred input operating points;

wherein determining at least one operating region in Ni, No, To is performed for the entire operating space and for a region within the operating space corresponding to system operation at zero battery power, wherein a pair of operating regions in Ni, No, To corresponding to unconstrained and fully constrained battery power is determined.

15. (Previously presented) The method as claimed in claim 14 wherein said minimum aggregate system power losses are determined from a group of power losses consisting of engine losses, electrically variable transmission losses, motor losses and battery losses and combinations thereof.